

# Walnut Custom Watershed Discovery Meeting

March 4, 2020

El Dorado, KS



**wood.**



*Your engagement in this process is important to the success of this project, so thank you for taking the time to be here today!*

# Today's Goals

- ▶ Project Overview- Review Process and Project Timeline
  - ▶ This is the beginning, not the end!
  - ▶ Initial Base Level Engineering (BLE) Data will change with Data Development
- ▶ Discovery Process and Identification of Mitigation Actions
  - ▶ Technical Assistance Options
- ▶ Levee Discussion
- ▶ Group Discussion of Community Flood Risk

# Why We're Here?

- ▶ The Walnut Custom Watershed was chosen for a Discovery/ Base Level Engineering project.
- ▶ Develop a complete, current picture of your flood hazards and risks to help you better:
  - ▶ Plan for the risk
  - ▶ Take action to protect your communities
  - ▶ Communicate the risk to your citizens
- ▶ Determine the next steps for future projects.

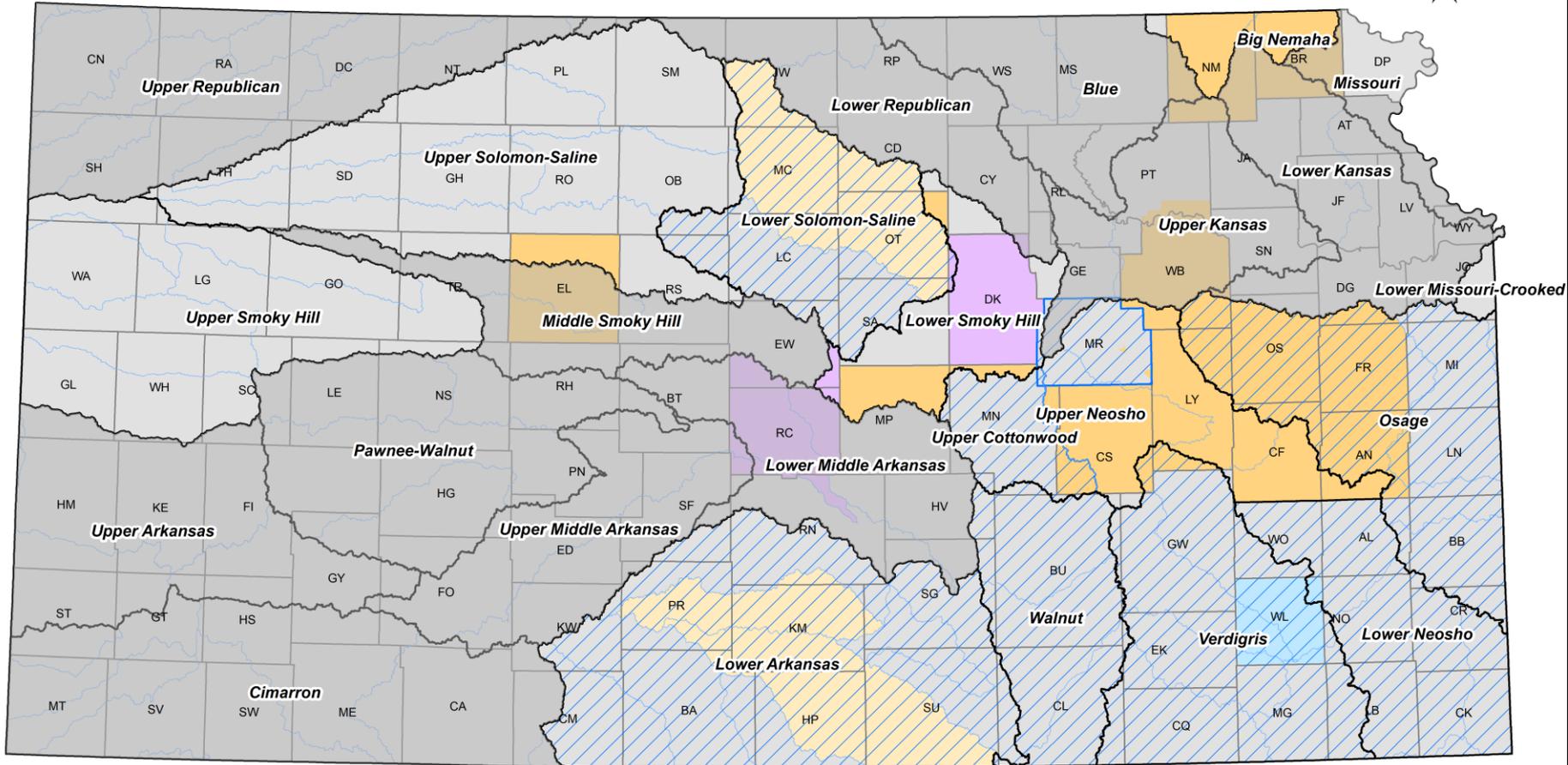
# Why Have Floodplain Maps?

- ▶ Determine where flood insurance is needed and rate its cost.
  - ▶ Flood Insurance Rate Map (FIRM)
- ▶ To provide the basis for executing community floodplain management ordinances.
- ▶ Understand flood risk so communities can make informed planning decisions.

# FEMA Floodplain Mapping Program

- ▶ Risk Mapping Assessment and Planning
- ▶ Supports the National Flood Insurance Program. Performed on a watershed basis.
- ▶ Consists of both Regulatory & Non-Regulatory Products.
- ▶ FEMA Program that provides communities with flood information and tools they can use to enhance their mitigation plans and take action to better protect their citizens.

# Current Floodplain Mapping Projects and Custom Watersheds



## Project Status

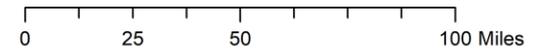
- Proposed FY19 BLE\*
- Underway
- Draft
- Preliminary
- LFD
- FOA Complete (Non-Reg Zone A)

## Watershed Projects

- Custom Watersheds (labeled)
- FY18 BLE Projects -In Development
- HUC 8 Watersheds (not labeled)

October 1, 2019

\*Not all watershed areas will be included.  
Please check with KDA for details.



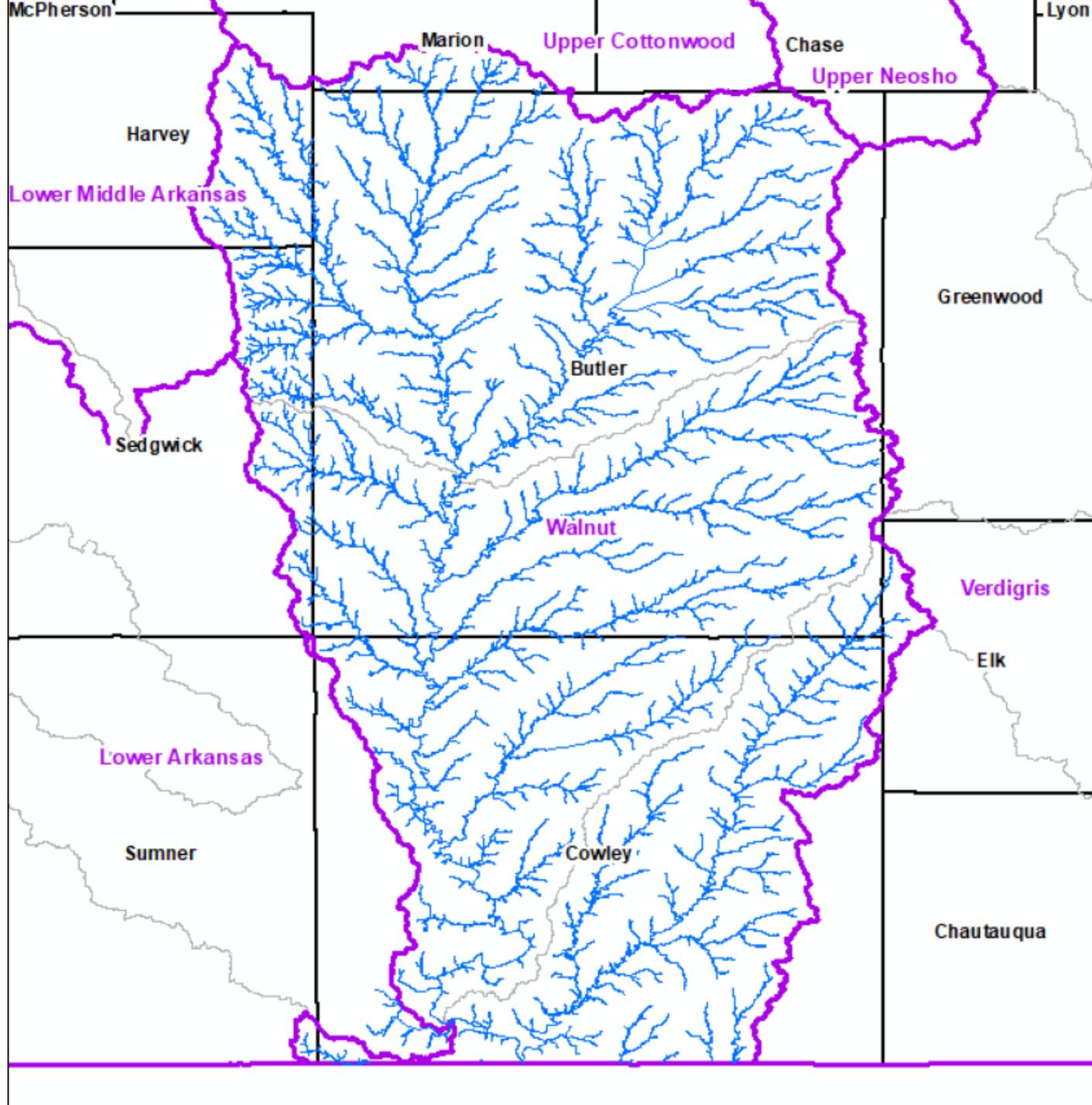
# Project Timeline

- ▶ Project Kickoff & Initial Map Review
  - ▶ Meeting - December 12, 2019
  - ▶ Community Review of Base Level Engineering (BLE) data

# BLE Study Area

— Study Lines

\*BLE Floodplains are Complete for this Study Area





# Walnut Custom Watershed - Initial Base Level Engineering (BLE) Floodplain Data

Please note that this data is an early draft and is not to be considered best available in all locations. To request a Base Flood Elevation, please contact the Kansas Department of Agriculture.

## Legend

### Layers (Click to expand)

- Comments
- Study Status
- BFE Requests
- Floodplain Data
  - Base Flood Elevation (BFE) 12-2-2019
  - Streams
  - Draft Changes Since Last FIRM 12-2-2019
  - Draft Base Level Floodplains 12-2-2019
- Current Effective Floodplain Data
- NG911

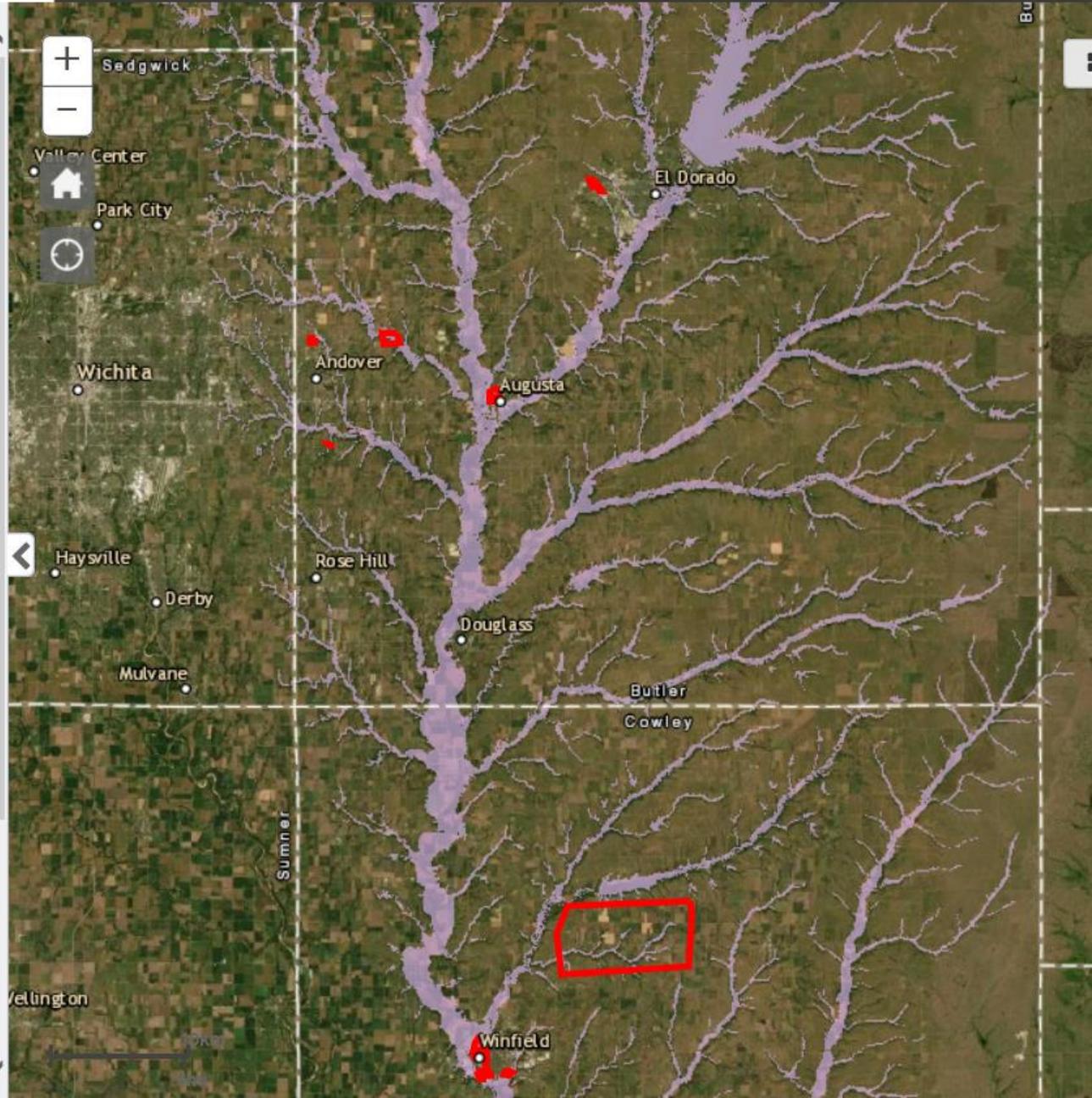
### Editor

Leave Comment

### Identify

Choose "All Visible Layers" or a single layer for identify:

\*\*\* All Visible Layers \*\*\*



# Base Flood Elevation Portal



## Kansas Base Flood Elevation Portal

[Home](#)[About](#)[Help](#)

### Portal Registration

First Name	<input type="text"/>
Last Name	<input type="text"/>
User name	<input type="text"/>
Title	<input type="text"/>
Phone	<input type="text"/>
Email Address	<input type="text"/>
Address	<input type="text"/>
City	<input type="text"/>
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State	<input type="text" value="Kansas"/> ▾

Register

For Zone A Floodplains, you can request BFE Data. Keep in mind, BLE data is subject to change.

# Project Timeline

- ▶ **Walnut Discovery**
  - ▶ Meeting- March 4, 2020
  - ▶ Mitigation Discussion
  - ▶ Identification of Technical Assistance needs and options
  - ▶ Data Collection from Community

*Discovery is the process of data mining, collection, and analysis with the goal of initiating a flood risk or mitigation project and discussing risk within the watershed*

# NFIP Participation Status

▶ Butler County- yes (*92 Policies*)

## ▶ Cities

▶ Andover- yes (*19 Policies*)

▶ Augusta- yes (*52 Policies*)

▶ Benton- no

▶ Cassoday- yes (*0 Policies*)

▶ Douglass- yes (*1 Policy*)

▶ El Dorado- yes (*84 Policies*)

▶ Elbing- yes (*0 Policies*)

▶ Latham- no

▶ Leon- yes (*0 Policies*)

▶ Potwin- yes (*0 Policies*)

▶ Rosalia- no

▶ Rose Hill- yes (*3 Policies*)

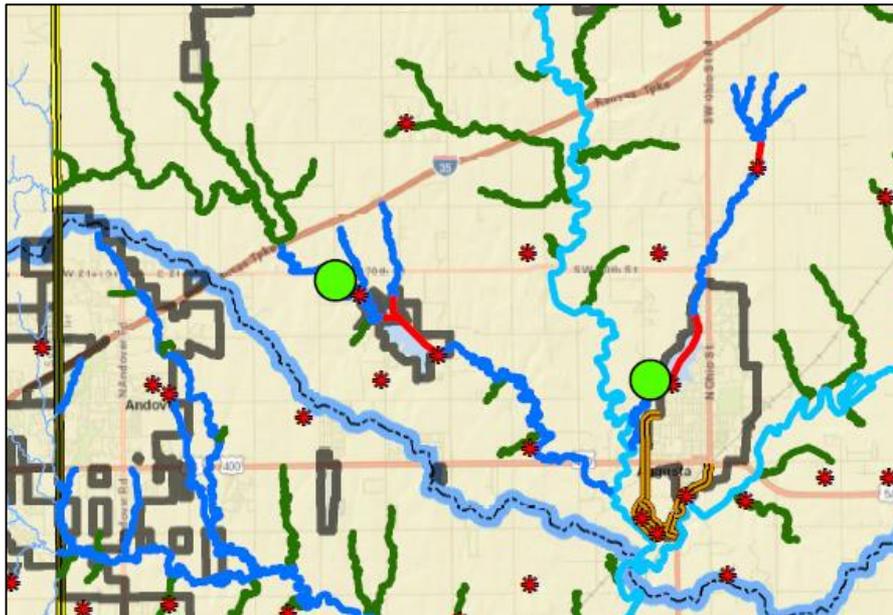
▶ Towanda- yes (*0 Policies*)

▶ Whitewater- yes (*0 Policies*)

# Repetitive Loss Structures

Insurable building for which 2 or more claims of more than \$1,000 were paid by NFIP in 10-year period

- ▶ Two clusters near Augusta



● Repetitive Loss Clusters

# Why is Discovery Important?

- ▶ Required for new and updated:
  - ▶ Flood studies
  - ▶ Flood risk assessments
  - ▶ Data Development for Mitigation
- ▶ Includes an assessment of flood related concerns
- ▶ Identifies Leverage data available for use in data development
- ▶ Identifies Areas of Greatest Flood Risk
- ▶ Identifies Mitigation Options

# What information do you have that can help us make better maps?

- ▶ Updated Imagery
  - ▶ Will typically use the latest NAIP Imagery
- ▶ Survey or As-Built Plan Information
  - ▶ Bridge or Culvert Openings
  - ▶ Channel Information
- ▶ LOMR's or LOMA's
- ▶ Historical Flooding Information/  
High Water Marks

# What information do you have that can help us make better maps?

- ▶ Let us know areas of development where the ground surface has likely changed since the date of the Lidar (2012 for this area)
  - ▶ Provide us with survey/as-builts/grading plans for recent development
  - ▶ We hope to have 2018 LiDAR soon
    - ▶ Will look for changes in the ground elevation and update if needed

# What information do you have that can help us make better maps?

- ▶ During Initial Map Review meeting, there was mention of some new projects. Can we get as-built plan information?
  - ▶ Construction at the Flint Hills Golf Course
  - ▶ New Walmart in Augusta

# Are there areas where Mitigation should be considered?

- ▶ Determine areas that would benefit from mitigation efforts
- ▶ Determine the amount of interest from local stakeholders
- ▶ Determine funding opportunities

# Mitigation Technical Assistance

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# KDA Mitigation Technical Assistance

- ▶ Funding has been available in recent years from the KS CTP Grant
  - ▶ Predefined projects & pot of money to allocate when projects are identified
- ▶ Project Types:
  - ▶ Modeling infrastructure improvements to see flooding reductions in SFHA
  - ▶ Benefit-Cost Analysis (BCA)
  - ▶ Structure Based Risk Assessment
  - ▶ Community Outreach and Education - Story Maps, Virtual Reality (VR)

# KDA Mitigation Technical Assistance

- ▶ Timeline: Ideally performed during Base Level Engineering (BLE), Discovery or Data Development Phase
- ▶ Cannot fund the improvement project itself
- ▶ Website for Technical Assistance Projects
- ▶ Includes project specific information
- ▶ Link to fillable request form
  - ▶ <https://www.agriculture.ks.gov/divisions-programs/dwr/floodplain/mapping/technical-assistance>

[Kansas Floodplain Map Viewer](#)

[LOMC Search](#)

[Mapping Projects](#)

[Technical Assistance](#)

[Home](#) > [Divisions & Programs](#) > [Division of Water Resources](#) >

[Floodplain Management](#) > [Mapping](#) > [Technical Assistance](#)

## Technical Assistance

### TECHNICAL ASSISTANCE PROJECTS

- [Gypsum](#)
- [Hoisington](#)
- [Solomon](#)
- [South Hutchinson](#)
- [Topeka](#)

### TECHNICAL ASSISTANCE INFORMATION

FEMA Funds for technical assistance projects have come available in recent Cooperating Technical Partner (CTP) funding cycles. These projects do not include funding for construction of projects, but they can be utilized for modeling mitigation scenarios for possible projects. These funds can be applied for grant-related purposes, ordinance or code support, engineering and analysis, planning, outreach and education. Communities within Kansas can apply for Technical Assistance support through KDA, though priority will be given where there are active [mapping projects](#). For questions, please contact Tara Lanzrath, by phone at 785-296-2513 or [email](#).

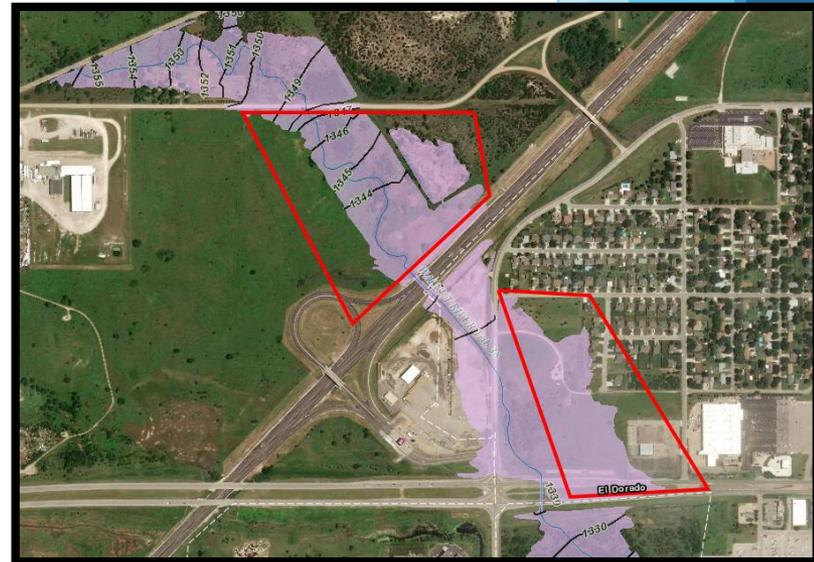
[Technical Assistance Request Fillable Form](#)

# Potential Technical Assistance Ideas

- ▶ During December meeting, there was mention of a flap gate that was not functioning properly in Augusta, causing flooding to occur.
  - ▶ Could model the flood impacts from malfunctioning flap gates of various degrees
  - ▶ Could develop educational materials for proper maintenance of flap gates and early signs of issues

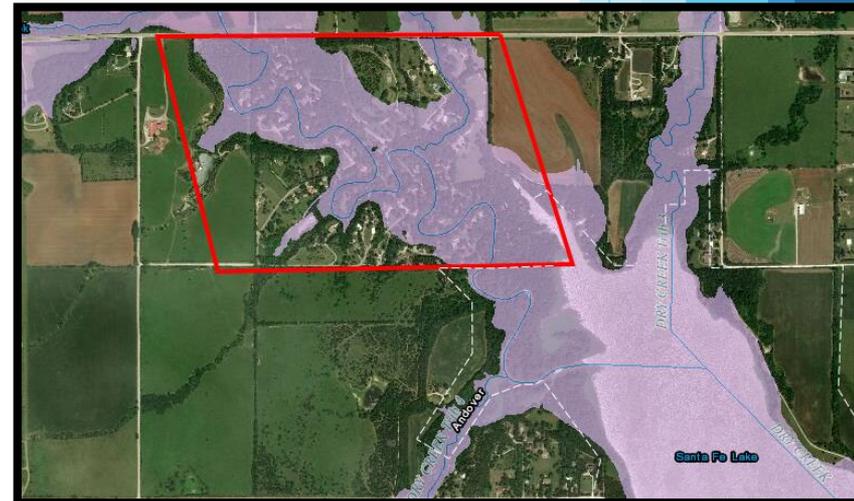
# Potential Technical Assistance Ideas

- ▶ During December meeting, there was mention of future development plans in El Dorado near W Central and the Turnpike
- ▶ Could evaluate flood risk impacts from the future development and evaluate detention opportunities on the west side of the Turnpike, where City owns the property



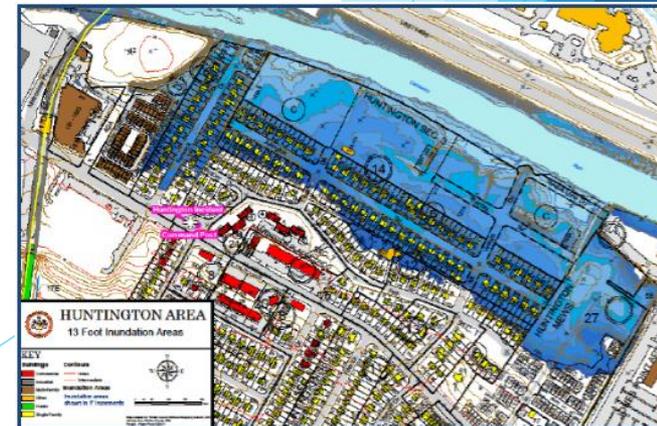
# Potential Technical Assistance Ideas

- ▶ During December meeting, there was mention of regular flooding at the Wagon Wheel Ranch sub-division, located outside of Andover.
- ▶ Could evaluate possible alternatives for reducing the flood impact in this area with upstream detention, channel improvements etc.
- ▶ Could evaluate impacts to Santa Fe Lake, which is downstream of this sub-division.



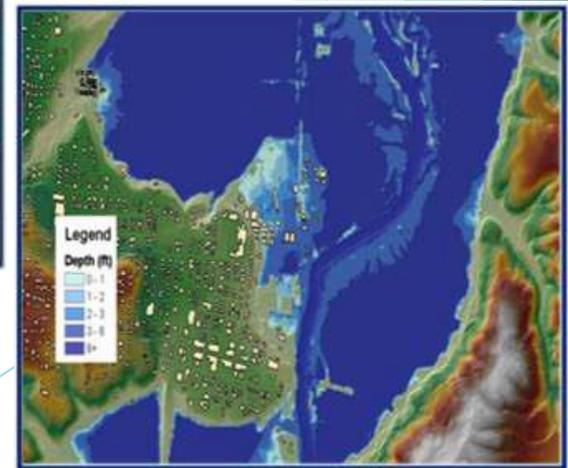
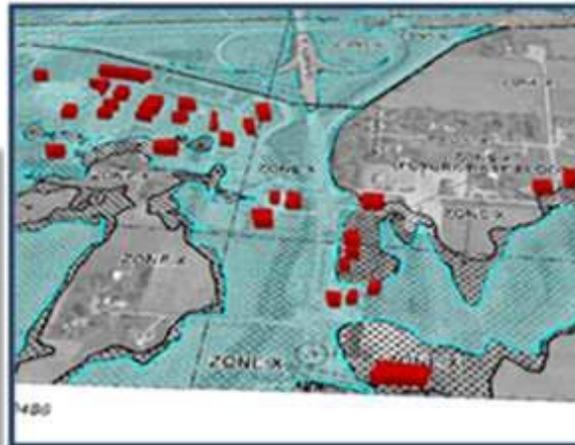
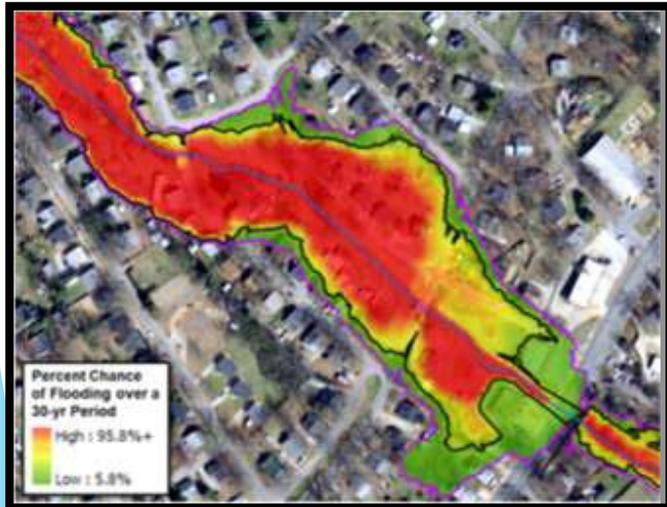
# Potential Technical Assistance Ideas

- ▶ Butler County is enrolled in the Community Rating System (CRS) Program.
  - ▶ Could assist CRS Community with required mapping associated with Activity 610- Flood Warning and Response
    - ▶ Would include flood stage forecast maps for use in flood threat recognition system
    - ▶ Would include assistance completing necessary documents
    - ▶ Would result in additional CRS points for community



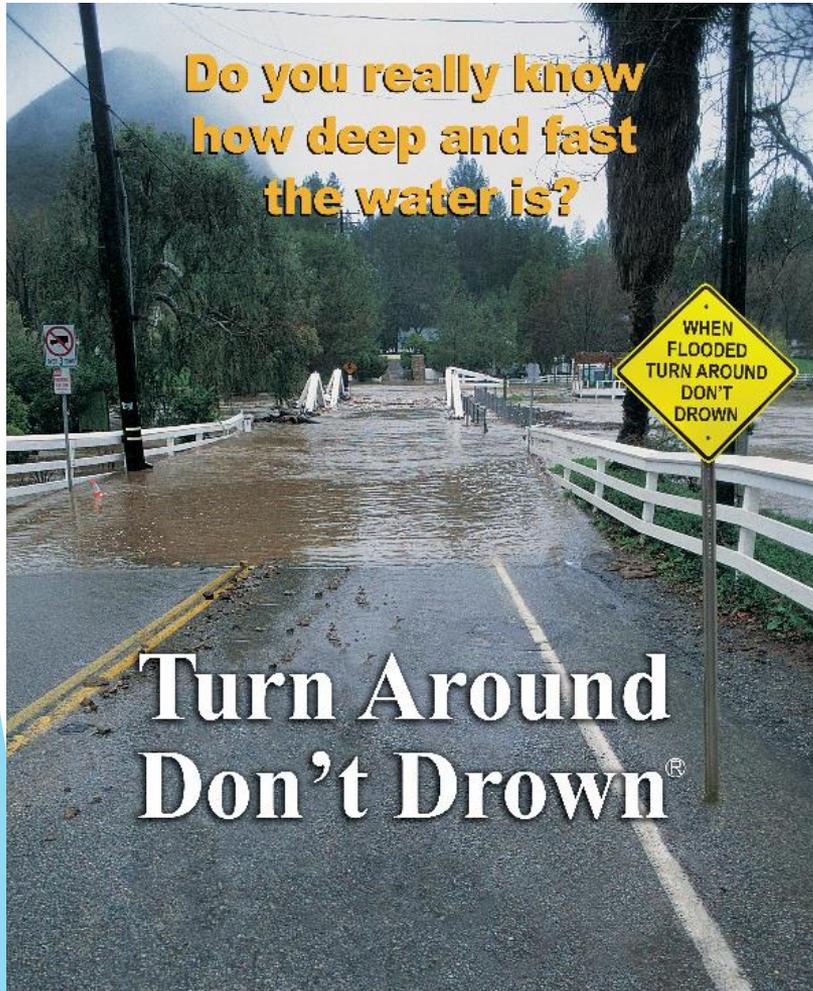
# Potential Technical Assistance Ideas

- ▶ Trainings and Workshops
  - ▶ Could provide trainings or workshops for GIS staff on ways to effectively use the data that is generated as part of the modeling and mapping



# Potential Technical Assistance Ideas

## Education Outreach



ROAD  
CLOSED  
AHEAD

STEER CLEAR *of*  
FLOODED ROADS

- Never drive on flooded roads – almost half of flood deaths happen in vehicles.
- 6 inches of water is enough to cause you to lose control of your vehicle.
- If you encounter flood waters on a roadway, Turn Around, Don't Drown®.

FEMA

# Potential Technical Assistance Ideas

## Education Outreach



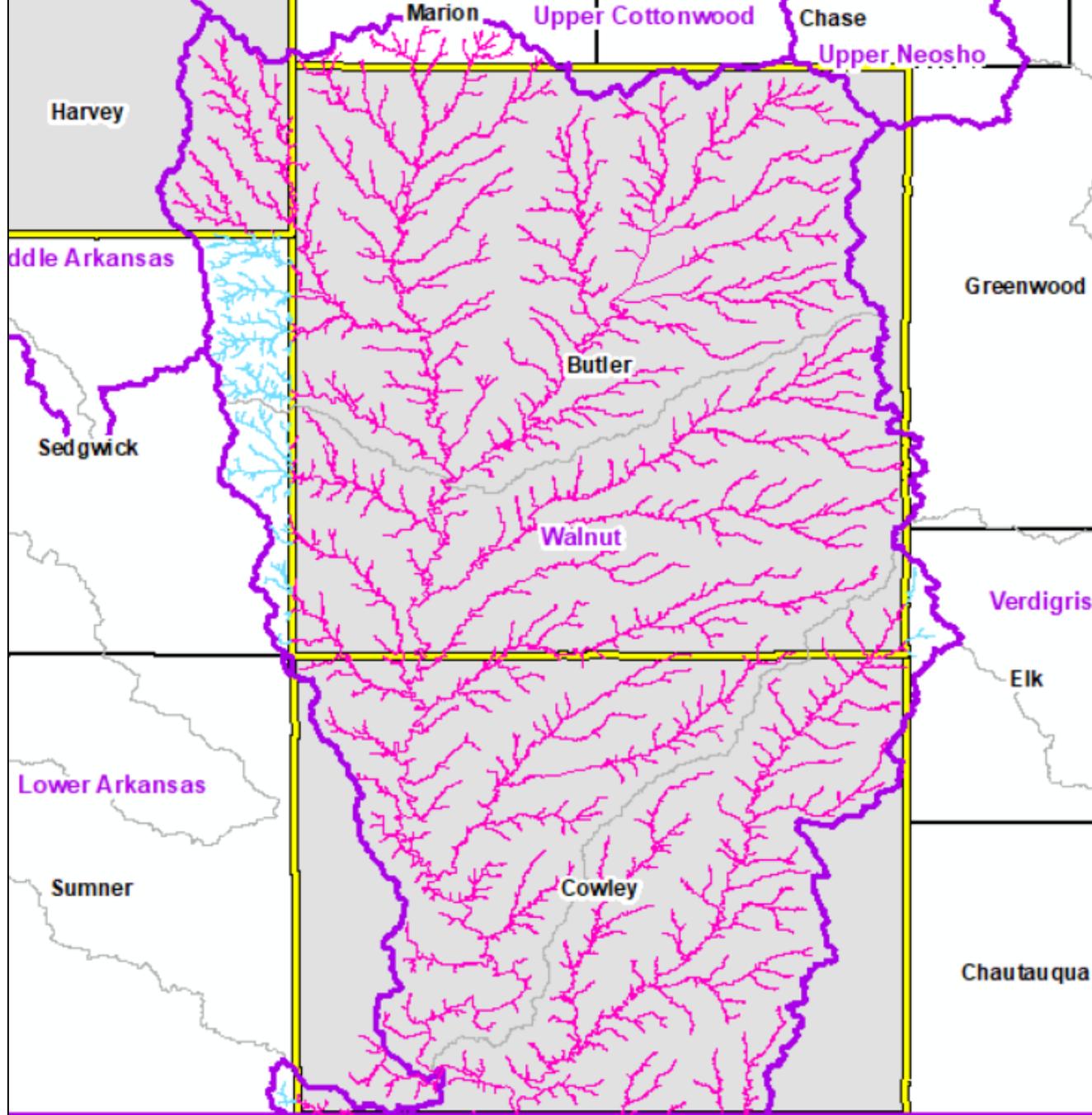
# Potential Technical Assistance Ideas

## Education Outreach



# Planned Regulatory Updates

- Planned Update
- No Planned Update
-  \*County-wide Update



# Butler County Proposed Mapping Updates

## Scoped Studies

### New Zone A - Gage Analysis

New Zone A studies will be developed for these streams using 2D "excess rainfall-on grid" hydrology calibrated to Gage Analysis Flows, and 2D Hec-Ras hydraulics.

### New Zone A - Gage Analysis

New Zone A studies will be developed for these streams using 2D "excess rainfall-on grid" hydrology and 2D Hec-Ras hydraulics.

### New Enhanced Zone A - Excess Rainfall on Grid

New Enhanced Zone A studies will be developed for these streams using 2D "excess rainfall-on grid" hydrology and 2D Hec-Ras hydraulics. Floodways will not be developed. Field measured structure data will be incorporated into the modeling.

### New Zone AE with Floodway - Excess Rainfall on Grid

New Zone AE studies will be developed for these streams using 2D "excess rainfall-on grid" hydrology and 2D Hec-Ras hydraulics. Floodways will be developed. Field measured structure data will be incorporated into the modeling. BFEs will be shown on the maps.

### New Zone AE with Floodway - Gage Analysis

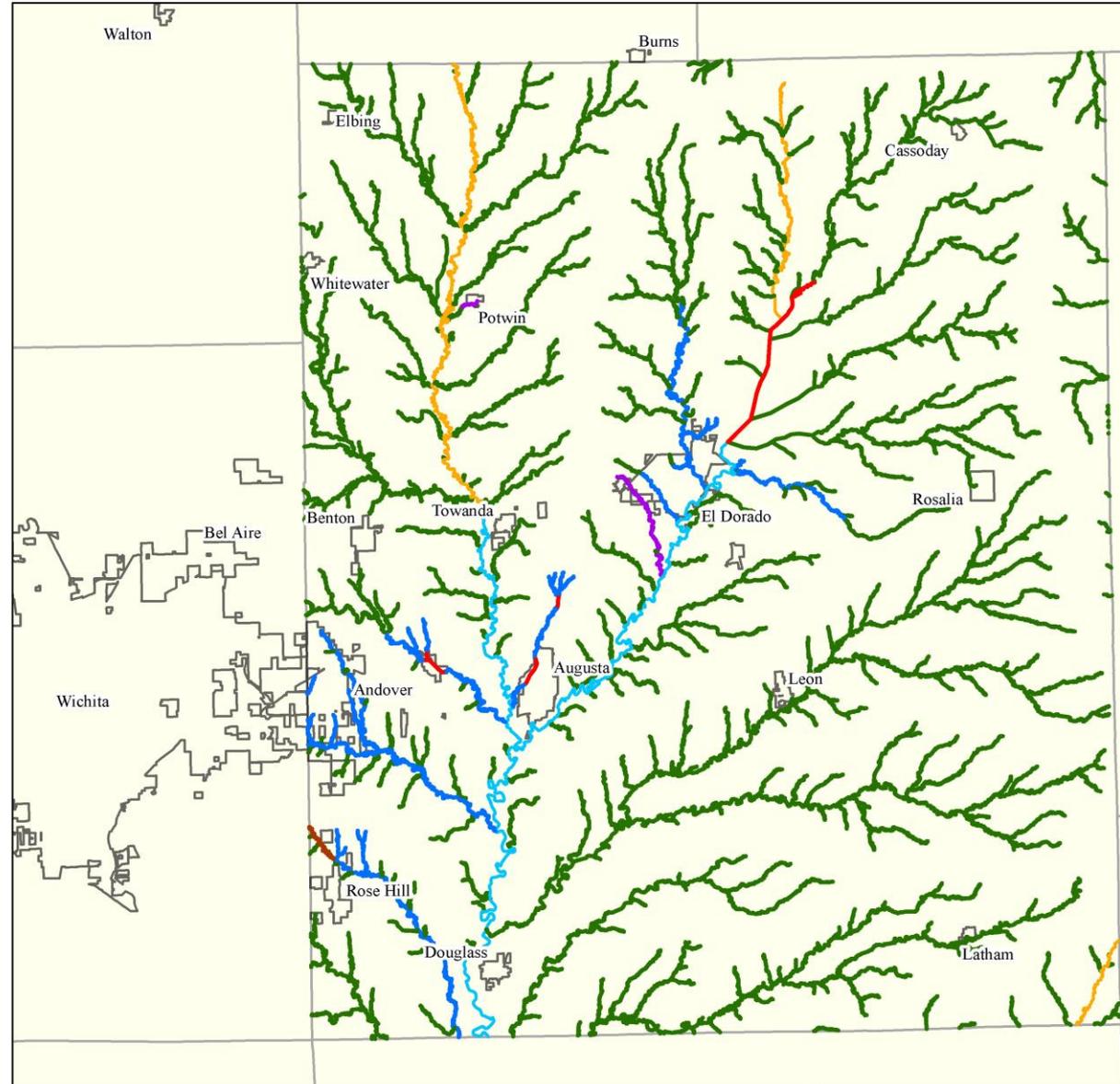
New Zone AE studies will be developed for these streams using 2D "excess rainfall-on grid" hydrology calibrated to Gage Analysis Flows, and 2D Hec-Ras hydraulics. Floodways will be developed. Field measured structure data will be incorporated into the modeling. BFEs will be shown on the maps.

### New Zone AE - Excess Rainfall on Grid

New Zone AE studies will be developed for these streams using 2D "excess rainfall-on grid" hydrology and 2D Hec-Ras hydraulics. Field measured structure data will be incorporated into the modeling. Floodways will not be developed. BFEs will be shown on the maps.

### New Static Zone AE

New Static Zone AE studies will be developed for these streams using statistical frequency analysis.



0 3.25 6.5 13 Miles



# Project Timeline

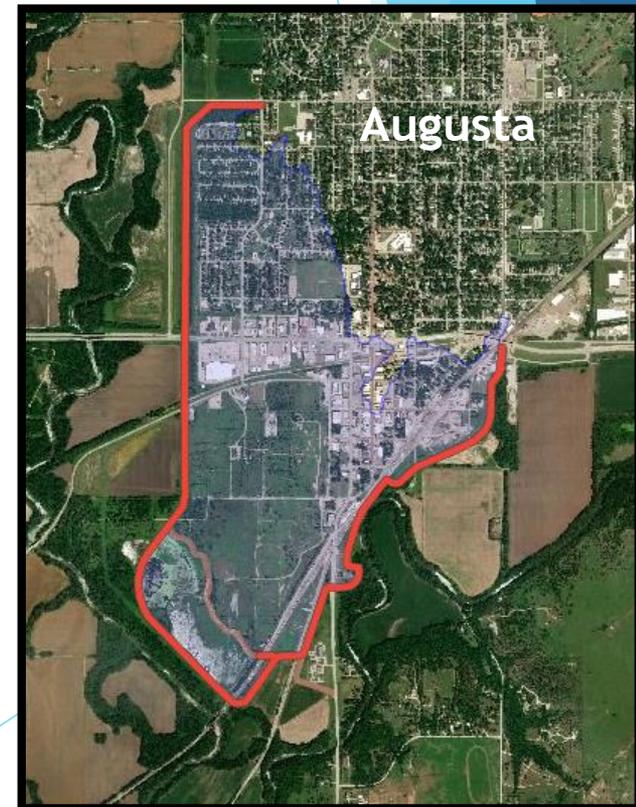
- ▶ Data Development Tasks (Butler and Cowley Counties)- Estimated for 2022
  - ▶ Base Map & Topography
    - ▶ Streets, PLSS, political boundaries, LiDAR
  - ▶ Perform Field Measurements on specific structures
  - ▶ Hydrology & Hydraulics (Modeling Enhancements)
  - ▶ Floodplain Mapping & FIRM Database Updates
  - ▶ Community and Public Review Periods
- ▶ Preliminary Map Products
- ▶ Post-Preliminary Processing

# What is Data Development?

- ▶ Engineering Modeling & Mapping used for county-wide update.
- ▶ Considerations include:
  - ▶ Enhancements to BLE, including additional model calibration
  - ▶ Additional rainfall-runoff modeling for specific areas and calibration purposes
  - ▶ Consideration of historical flooding events and other local data
  - ▶ Field-measured survey of structures, where specified
  - ▶ Robust review internally and externally
  - ▶ Considers and addresses community review comments

# Levee Discussion

- ▶ There are 3 Levee Systems in Butler County
  - ▶ Augusta System- Accredited
  - ▶ El Dorado- Non-Accredited
  - ▶ Rural Area near Leon- Non-Accredited

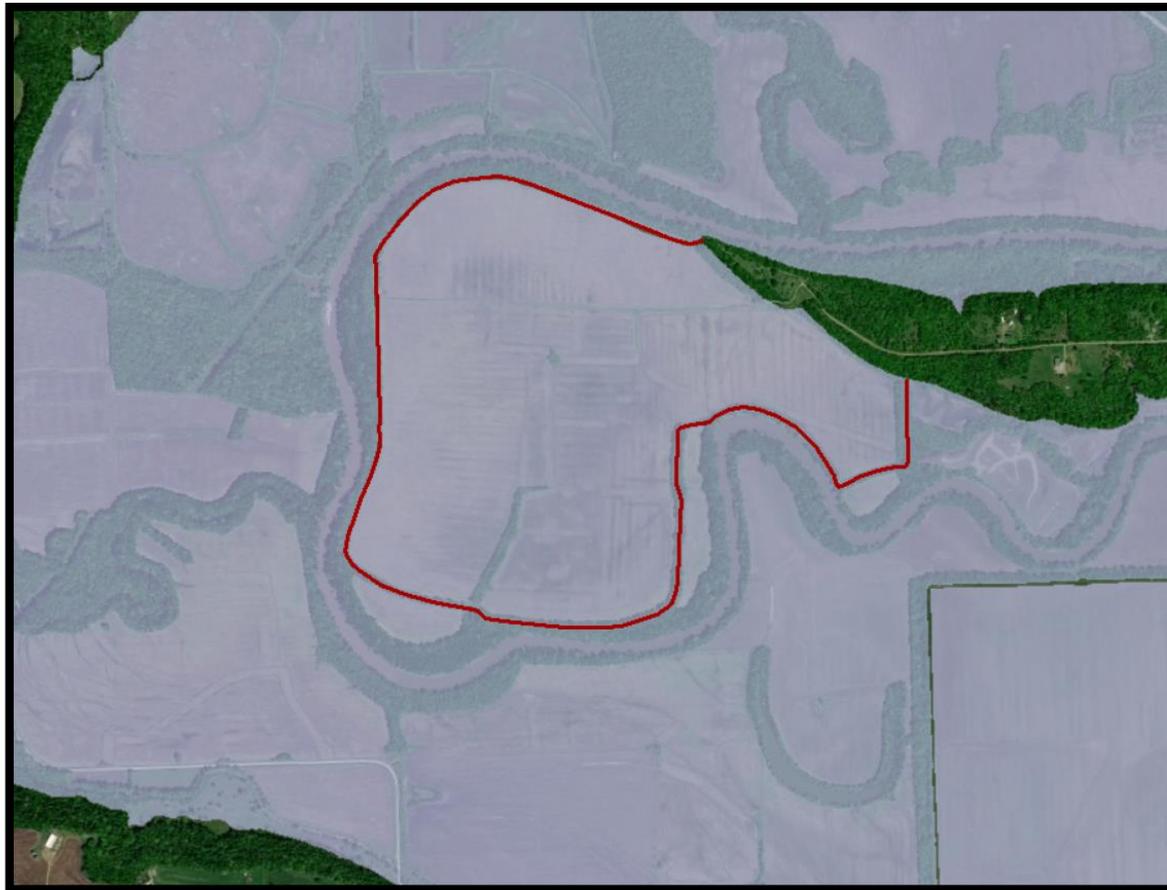


# Levee Discussion

- ▶ Augusta and El Dorado PMRs went effective on January 22, 2020
  - ▶ There is no current plan to re-study these Levees.
  - ▶ Mapping is based on Certification Status of Levees.

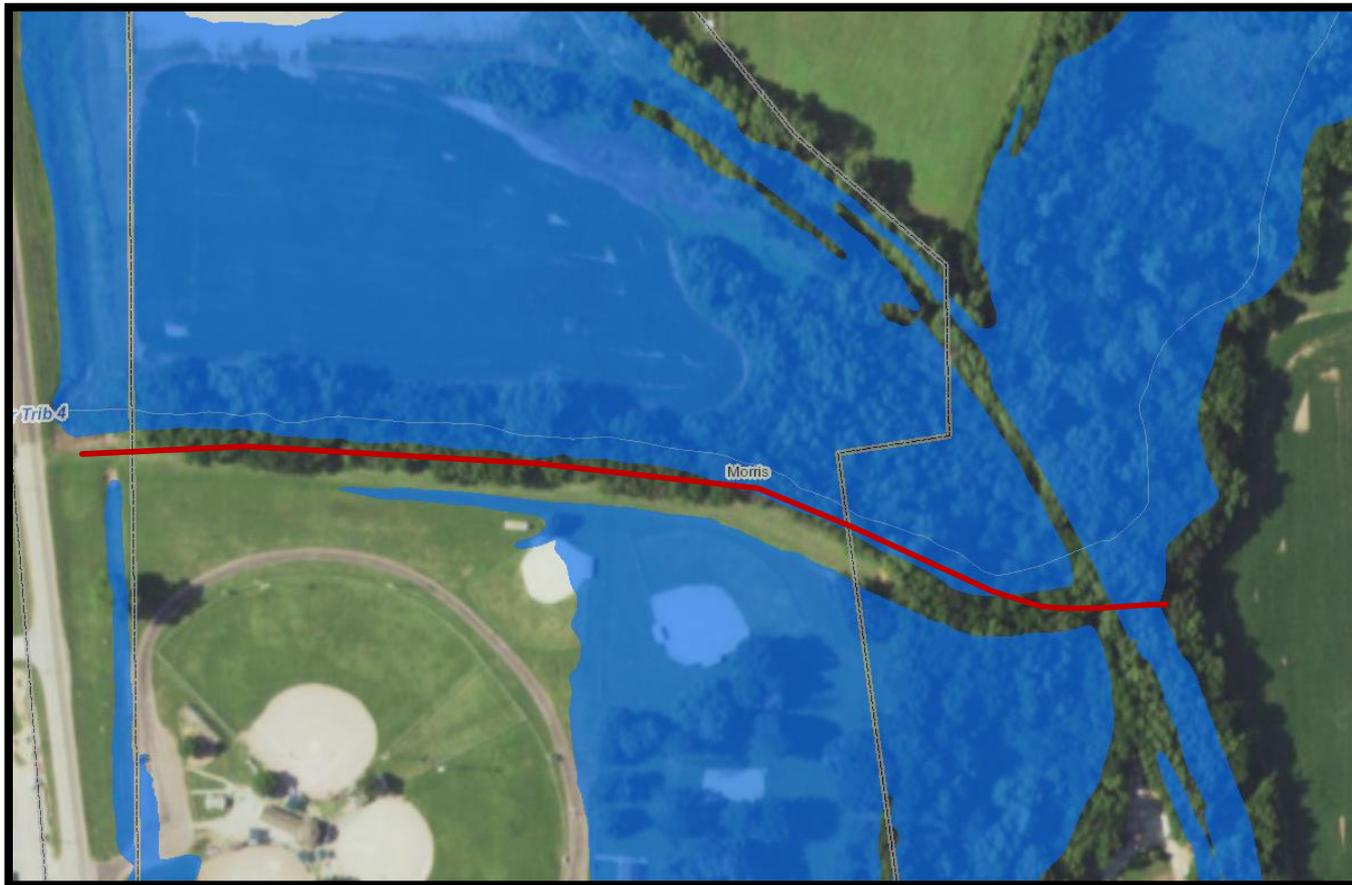
# Modeling Non-Accredited Levees

Levees that are overtopped for 1% annual chance storm are considered hydraulically insignificant and are mapped as overtopping.



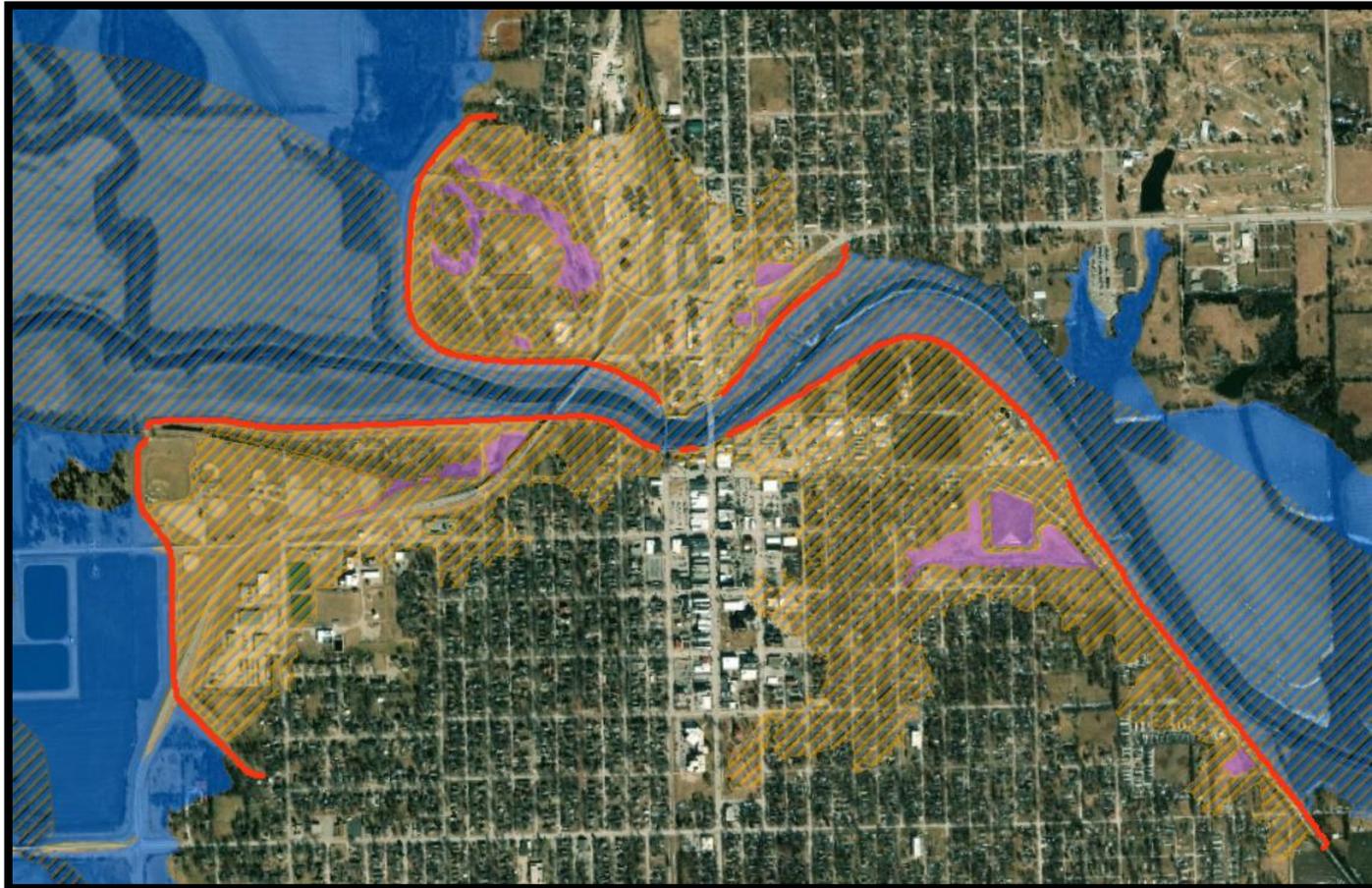
# Modeling Non-Accredited Levees

Levees that are not overtopped for 1% annual chance storm are considered hydraulically significant and are mapped using with and without levee scenarios.



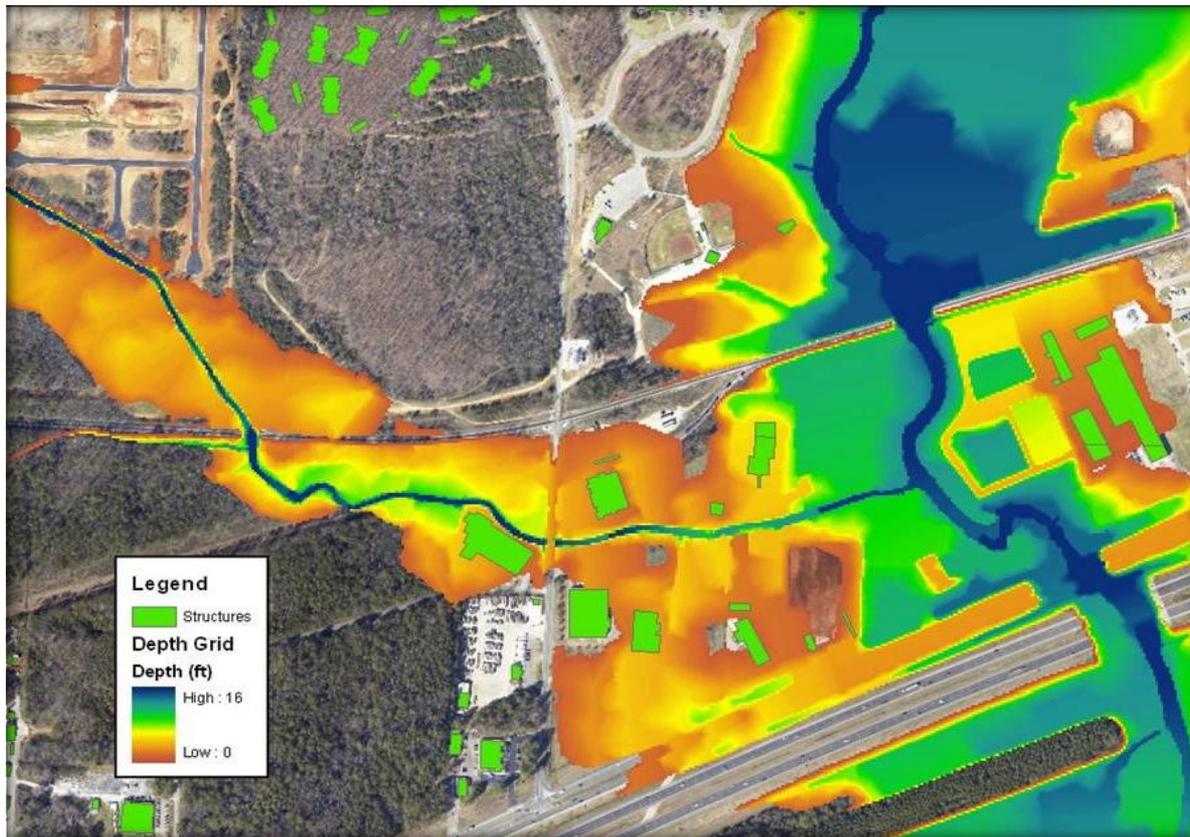
# Modeling Accredited Levees

Accredited Levees will be mapped per 65.10 Guidance, which removes the Special Flood Hazard Area inside the levee, with the exception of ponding areas.



# Development of Risk Map Products

- ▶ Water Surface Elevation Grids
- ▶ Depth Grids
- ▶ Probability of Flooding Grids



# Ultimate Project Goals

- ▶ Update floodplains in the Walnut Custom Watershed with modern mapping (new regulatory mapping for Butler and Cowley Counties).
- ▶ **Leave a map that communities BELIEVE.**
- ▶ Help communities and residents better understand and prepare for their flood risk.
- ▶ Identify mitigation opportunities.

# What Should You Do Next?

## ▶ Provide Data

- ▶ Provide any existing data (Imagery, Surveys, Plans, LOMRs, High water marks etc.)
- ▶ Provide information on drainage studies, stormwater plans, capital improvement plans, upcoming projects.

## ▶ Consider Mitigation Projects

- ▶ Should a Technical Assistance Request be submitted?
- ▶ Should other Mitigation Projects be initiated?

# Key Takeaways

- ▶ The Process is going to take time
- ▶ The Community's Involvement will help us produce better maps!
  - ▶ Get out the word and encourage participation in this project
  - ▶ Review information as it becomes available

**DON'T HESITATE TO CALL, WE ARE AVAILABLE**

# Stay Informed

## ▶ Email List

- ▶ Get us names, addresses, and titles
- ▶ Will be main source of project updates

## ▶ Project Updates

- ▶ Minimum of quarterly
- ▶ When important milestones are reached
- ▶ When action is necessary (reminders)

## ▶ Meetings

- ▶ 5 planned in-person meetings
  - ▶ Kickoff, Discovery Meeting, Flood Risk Review, Open House, Post-Preliminary CCO meeting
- ▶ Others as needed

# Online Project Information

## ▶ Project Website

- ▶ Scoping Maps, Project Timeline, Meeting Presentations, Newsletters, Technical Reports, Web Review Map
- ▶ <https://www.agriculture.ks.gov/divisions-programs/dwr/floodplain/mapping/mapping-projects/lists/mapping-projects/walnut-custom-watershed>

## ▶ Web Review Map -

- ▶ Review of Base Level Engineering (BLE) data
- ▶ [Website available to stakeholders upon request](#)

## ▶ Story Maps

- ▶ Project Info
- ▶ “Floodplain Current”: Mapping Process ‘Nuts and Bolts’

# Flood Risk and Mitigation Discussion

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# Q & A

Tara Lanzrath  
Floodplain Mapping Coordinator  
Kansas Department of Agriculture  
Division of Water Resources  
785-296-2513  
[tara.lanzrath@ks.gov](mailto:tara.lanzrath@ks.gov)